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Recognition Awards for the Integration of Research and Education Solicitation

OFFICE OF SCIENCE AND TECHNOLOGY INFRASTRUCTURE

DEADLINES: PRELIMINARY APPLICATIONS (Required), July 5, 1996
FULL APPLICATIONS, November 15, 1996

NATIONAL SCIENCE FOUNDATION

The National Science Foundation has a vision for enriching the Nation's future through research and education in science and engineering. This vision, articulated in the Foundation's Strategic Plan "NSF in a Changing World," is anchored in the process of discovery -- discovery by researchers, teachers, professors, their students, and all citizens, whether or not they are in the academic sector of society. By enabling excellence in education and research, the Foundation is working to serve society in many ways through discoveries in science and engineering.

This NSF vision for the future is the basis for its three far-reaching goals:
- Enable the United States to uphold a position of world leadership in all aspects of science, mathematics, and engineering;
- Promote the discovery, integration, dissemination, and employment of new knowledge in service to society; and
- Achieve excellence in U.S. science, mathematics, engineering, and technology education at all levels.

Among the Foundation's core strategies for attaining these goals, one strategy -- the integration of research and education in science and engineering -- stands out as an emerging challenge to both NSF and the academic community. The Nation's research-intensive universities have grown rapidly in the decades since NSF was created and the Foundation's major investments in these institutions have promoted the growth of their research enterprise. In addition to sharing responsibility for this growth in research capacity, NSF and the research-intensive universities also share the dual mission of promoting excellence in both research and education in science and engineering. This partnership in support of an integrated research and education enterprise was, and is, the basis for the Federal policy of supporting research in an academic setting. The activity described in this solicitation is devoted to recapturing and reinforcing the integrated and balanced nature of the original dual missions of both NSF and the research-intensive universities.

This linkage between research and education has never been more important than it is right now. Today's students will spend most of their careers in the 21st Century, coping with open-ended challenges and opportunities. The demands that will confront tomorrow's scientists and engineers are vastly different from those faced by today's researchers. Several recent studies of U. S. undergraduate and graduate research and education in science and engineering have stressed the importance of educating today's students in a discovery-rich environment. Most academic research is conducted at research-intensive universities, and these institutions must play a leadership role if the vision articulated in these studies is to be realized.

NSF agrees with these studies in asserting that both research and education

are enriched by their mutual integration. The Foundation places a high priority on encouraging a stronger linkage between research and education in science and engineering. The Foundation has established several programs that promote the integration of research and education, a list of which is provided at the end of this solicitation. These programs have focused primarily on supporting integration efforts by individual faculty members or by academic departments. The integration of research and education at these levels is critically important and NSF remains committed to supporting these efforts. Nevertheless, efforts at these levels are not enough to ensure continued U.S. leadership in science and engineering.

The challenges now facing the Nation's research-intensive universities require responses from the top levels of institutional leadership. Many colleges and universities have already begun to re-examine the relationship between their research and education enterprises. Many of these institutions, from liberal arts colleges to research-intensive universities, have made significant commitments to, and investments in, activities that integrate research and education. The tangible effects of their achievements are now surfacing and the lessons learned from their successes will be valuable to a wide range of institutions.

There are many characteristics that mark those academic institutions that are committed to the integration of research and education. These characteristics represent conditions for effectiveness, signs of active implementation, or indications of successful outcomes and impacts. They include, but are not restricted to, the following:

- The highest levels of administration within the university are outspoken champions for both the research and education missions of their institutions and a strong linkage between them.
- Promotion and tenure policies reflect commitment to the synergistic integration of research and education.
- The policies and practices of the institution value, encourage, develop, recognize, and reward individuals who are attempting to build careers that balance and combine research and education.
- The university makes tangible and persistent investments in the people and facilities that comprise a rich and integrated research/education environment, and seeks enriching linkages with other institutions.
- Faculty members feel free to explore new and integrative approaches to their teaching and research.
- Organizational structures, administrative procedures, curricula, and courses are in a process of continuous re-examination and change to achieve more innovative and effective integration of research and education in science and engineering.
- Undergraduate education, including preparation of future K-12 teachers, has a hands-on component that puts faculty and students together in a discovery experience.
- Students are encouraged to pursue problems that challenge them to venture across the boundaries that separate traditional disciplines.
- The education of graduate students includes opportunities for broad professional development that complement in-depth research training.
- Based on an integrated research/education experience, graduates chart new and broader career paths that are made possible by the graduates' potential for flexibility, adaptability, and continuous growth.

The integration of research and education could also be illustrated by a series of specific examples. However, the purpose of this solicitation is not to create a rigid and confining definition. Its purpose is to expand the definition by eliciting from the academic community the most innovative and exciting examples of the effective integration of research and education.

Recognition Awards for the Integration of Research and Education

This solicitation describes a new NSF recognition award for institutional leadership for the integration of research and education by research-intensive universities. These awards will recognize the commitment and accomplishments of those research-intensive universities that have gone beyond the efforts of individuals and departments. The recipients of this award will have pursued an institutional vision for integrating research and education across its entire science and engineering enterprise. This activity is devoted to identifying, recognizing, and rewarding research-intensive universities that have shown bold leadership and genuine innovation, and have produced tangible and meaningful results in the integration of research and education.

NSF will allocate $5 million to this activity in Fiscal Year 1997. Up to ten three-year awards of $500,000 each will be made to research-intensive universities after competitive merit review of applications. The achievements of the recipient universities will provide models for other research-intensive universities to consider. New information on the results

and impacts of their efforts will also illustrate the value and importance to the Nation of integrating research and education. Future NSF support for the integration of research and education as well as the possibility of future competitions for recognition awards will reflect the knowledge gathered through this activity. In focusing on research-intensive universities, this activity complements several other NSF activities for which institutions in other categories of higher education institutions are eligible.
This activity will focus on the Nation's research-intensive universities where NSF invests most of its resources. These institutions perform almost all publicly supported academic research, train most of the Ph.D. level scientists and engineers in the Nation, and prepare approximately half of the undergraduates who go on to earn doctoral degrees in science and engineering. Federal research support has been a powerful catalyst for growth of the research function in these universities. Perhaps as a result, research and education have become separate and competing priorities on some campuses. Integrating already strong science and engineering education with the world-class research efforts at these universities has the potential for profound effect on the Nation's research, undergraduate education (including the preparation of future K-12 teachers), and professional development of graduate students. For these reasons the Foundation is particularly interested in exploring and promoting the integration of research and education at research-intensive universities.

A list of the 137 institutions that are eligible to apply for this award is provided in this solicitation. This list includes: all Research I and II universities (as defined by the Carnegie Foundation for the Advancement of Teaching); all institutions that have been among the top 100 recipients of NSF support for Fiscal Years 1992, 1993, or 1994 and have well-established Ph.D. programs in science and engineering; and the Ph.D.-granting institution in each state that has received the greatest amount of NSF support for research and education in the last three years.

These awards are intended as a recognition both of past accomplishments and of potential future benefit to the recipient institution and the wider academic community. In addition to this public recognition, NSF hopes to expand the success within the awardee institutions and disseminate knowledge of their success to all U.S. academic institutions. Toward these ends, NSF will provide recipients of these recognition awards with considerable flexibility in designing and implementing activities supported with award funds, with the understanding that significant portions of the award will be devoted to each of the following three efforts:

1. Pursue the institution's vision for the integration of research and education in science and engineering by initiating new activities that build on past achievements. These new activities may be extensions of the institution's prior approach to the integration of research and education or they may be new experiments suggested by earlier experiences.

2. Document the institution's established efforts to integrate research and education and the outcomes and impacts that resulted from these efforts. This documentation effort should provide a summary of the institution's approaches and activities to date, and a useful knowledge base of the effectiveness, outcomes, and impacts of the university's past efforts to integrate research and education in science and engineering. Each awardee will be expected to publish documentation of activities, outcomes, and impacts in highly visible and prestigious professional journals.

3. Disseminate information on the institution's approach to the integration of research and education and its record of achievement. This recognition award for leadership and innovation brings with it a responsibility to serve as a visible exemplar for the academic community and a source of relevant information for the general public. Examples of appropriate dissemination activities include but are not limited to:

- publication of articles, for the academic community and for the general public, concerning the integration of research and education in science and engineering;
- publication of more detailed documentation of the institution's activities that integrate research and education, and their outcomes and impacts;
- creation of World Wide Web sites documenting the institution's integration activities;
- hosting workshops and conferences on the subject;
- sponsoring sessions in professional society meetings;
- producing and disseminating videotapes about integration activities; and
- hosting visits by representatives from other academic institutions.

Application and Review Process

The application, review, and award processes will be managed by the Office of Science and Technology Infrastructure (OSTI) on behalf of the Office of the Director. An institution may submit only one preliminary application. The

president, provost, or equivalent officer of the submitting organization must be the Principal Investigator. A single Project Director may be listed as Co-Principal Investigator.

The application process has two stages: a required preliminary application followed by a full application. Preliminary applications are required. A full application may not be submitted by an institution that has not submitted a preliminary application. Preliminary applications will be reviewed by an ad hoc panel of external reviewers with diverse backgrounds in higher education and academic research. Results of the review of preliminary applications will be provided to applicants on or before September 15, 1996.

DEADLINE FOR RECEIPT OF PRELIMINARY APPLICATIONS:
JULY 5, 1996

To limit the burden placed on submitting organizations, only 25 to 40 of the preliminary applicants will be encouraged to submit full proposals, based on the review of preliminary applications. Nonetheless, other applicants are not prohibited from submitting a full application.

Full applications will also be reviewed by an ad hoc panel of external experts. These reviewers will see neither the preliminary applications that preceded the full application nor the reviews of the preliminary applications.

DEADLINE FOR RECEIPT OF FULL APPLICATIONS:
NOVEMBER 15, 1996

Submission and review of preliminary and full applications will be through NSF's FastLane, the Foundation's system for electronic interactions with the community using the World Wide Web. FastLane is easily accessible through NSF's Home Page (http://www.nsf.gov). In addition, correspondence between NSF and submitting organizations during the review process will rely on electronic mail. If the requirement to submit applications electronically presents a significant barrier to any institution wishing to apply, FastLane staff are available to provide technical assistance. See Instructions for Applicants (below) for information on the procedures of applying. More detailed information on procedures for preparing and submitting an application via FastLane is available at Web site http://www.nsf.gov/od/osti under ÒRecognition Awards for Integration of Research and Education.Ó

Application Format and Review Criteria

Seven review criteria will be used in the conduct of this activity. A sub-set of three criteria will be used to review preliminary applications. The full set of seven criteria will be used to review full applications.

FORMAT AND REVIEW CRITERIA FOR
PRELIMINARY APPLICATIONS

Preliminary applications must be text-only narratives with a maximum length of 9,795 characters. (This maximum length is equivalent to three printed pages, 8.5Ó x 11Ó or 216 mm x 279 mm, single-spaced, using Courier font size of 10; 12 characters per 2.5 cm; margins no less than 2.5 cm at the top, bottom, and each side.) In addition to the narrative (submitted as the Project Summary, NSF Form 1358), a complete preliminary application must include a two-page Cover Sheet (NSF Form 1207), Information About Principal Investigators/Project Directors (NSF Form 1225) and a biographical sketch (NSF Form 1362) for both the PI and Co-PI (maximum length 3,265 characters each.) None of the other forms described in the Grant Proposal Guide (NSF Publications 95-27 and 95-28) are required for preliminary application to this activity. Procedures for preparing and submitting a preliminary application are provided below (see Instructions to Applicants.)

The narrative section of the preliminary application should be a brief and concise description that must include the following sections:

1. Institutional Vision for the Integration of Research and Education in Science and Engineering. What does the university envision as its near-term and long-term goals for the integration of research and education in science and engineering? How does the university view the importance of the integration of research and education and how does this view relate to the mission and culture of the institution?

Review Criterion: Is there a clear vision for the integration of research and education in science and engineering at the institutional level?

2. Nature and Scope of Integration Activities. Applicants should describe concisely the innovative ways that the university has tried to integrate research and education in science and engineering. These activities can include a wide variety of research and educational initiatives as well as changes in university policies, procedures, organizational structures and other aspects of campus culture. Whenever appropriate, the narrative should highlight the degree to which integration efforts:

a) cross organizational and disciplinary boundaries,
b) impact on faculty recruitment and development,
c) affect the learning experiences of students at different educational levels,
d) take advantage of new educational technologies, and
e) involve partnerships with other academic organizations and other sectors of society beyond academia.

Specify which organizational units of the university have been involved in the activities described above and the duration and depth of their involvement. Whenever possible, specify the number and proportion of the faculty and students within that unit that have participated in the initiative.

Review Criterion: To what extent are the integration activities innovative in nature and institution-wide in scope?

3. Commitments and Investments. The preliminary application should briefly describe the top administration's explicit and visible commitment to the effort, and the current institutional investment of tangible resources in the effort. The history of commitments and investments associated with each of the integration activities described above should be presented.

Review Criterion: Is there a record of significant institutional commitment to and investment in the integration of research and education in science and engineering?

FORMAT AND REVIEW CRITERIA FOR
FULL APPLICATIONS

Full applications may include text, tables and graphics up to a maximum length of 48,975 characters (equivalent to 15 printed pages with the font and page size restrictions noted above.) The full application should address the same three topics presented in the preliminary application:

1. Institutional Vision for the Integration of Research and Education in Science and Engineering,
2. Nature and Scope of Integration Activities, and
3. Past Commitments and Investments,

but should provide a fuller, but nonetheless concise, description. The review criteria associated with the three sections of the preliminary application (see above) will be used in greater depth in evaluating the corresponding sections in the full application.

In addition to these three sections, the full application must include the following additional sections.

4. Desired Outcomes and Impacts. The full application should describe the most meaningful outcomes and impacts that the institution has selected in designing efforts to integrate research and education in science and engineering. These outcomes and impacts should reflect the Òadded valueÓ benefits from the integrated research/education activities to one or more of the following: research, faculty, the university, students, their employers or other university constituencies, or to policies, procedures, or components of campus life. These outcomes and impacts should be sufficiently explicit and relevant to allow the university and others to appreciate the value and importance of the integration of research and education.

Review Criterion: Has the institution defined meaningful desired outcomes and impacts for its efforts to integrate research and education in science and engineering?

5. Documentation Efforts. The full application should describe any systematic efforts by the university to gather information for the purpose of documenting its integration activities and their outcomes and impacts. The parties charged with these information gathering efforts should be identified and their approaches described.

Review Criterion: Has the institution attempted to document its efforts to integrate research and education in science and engineering and the outcomes and impacts that have resulted from these activities?

6. Evidence of Achievements. The full application should present clear and tangible evidence of at least partially successful attainment of the desired outcomes and impacts of the efforts to integrate research and education in science and engineering. Summaries of any systematic information gathering efforts by the institution should be presented in this section. Information that demonstrates trends over time is encouraged.

Review Criterion: Has the institution been successful in producing the desired outcomes and impacts through its past efforts to integrate research and education in science and engineering?

7. Plans for Use of Award Funds. The full application should briefly describe the university's proposed plan for use of the $500,000 award over the three year award period. This plan should specify how the award funds will be allocated among different activities, organizational units, and efforts designed to achieve each of three objectives. Information on these budget allocations should be embedded in an explanation of how the proposed activities will help to achieve each of the following three objectives:

a) Expansion. New efforts to pursue the institution's vision for the integration of research and education in science and engineering by building on past achievements are appropriate uses of award funds. New initiatives may seek to broaden and deepen past activities or they may be new experiments suggested by the institution's past experiences. NSF funds should be used as a catalyst, not a sole support of these new activities.

b) Documentation. Systematic information gathering and publication of full documentation of the university's well-established integration efforts will provide an effective resource for many organizations. Awardee institutions should plan to publish these studies in peer reviewed professional journals and other venues. A scholarly approach to studying organizational change efforts related to the integration of research and education is consistent with the goals of this activity.

c) Dissemination. The approaches, experiences, and achievements of the awardee institutions will be valuable to NSF and the academic community. The awardee institutions are also in a unique position to articulate and demonstrate the value of integrating research and education in science and engineering to the general public.

NSF expects that larger portions of the award will be allocated to dissemination and documentation than to expansion. Cost sharing required under this activity is limited to a minimum of one percent of the award amount. However, the Foundation expects that following an award, recipient institutions will continue or expand their investments in activities that integrate research and education. NSF funds should not be used to replace the institution's investment role.

An NSF budget page (NSF Form 1030) and budget explanation will be requested only from the institutions recommended for an award following review of full applications. This budget page must be consistent with the allocation of award funds described in the full application.

Review Criterion: Does the institution have appropriate plans for use of the award funds that will accomplish the NSF objectives described below?

a) Pursue the university's vision by advancing efforts to integrate research and education in science and engineering.
b) Create a useful and accessible knowledge base of specific activities, procedures, policies, and investments as well as their outcomes and impacts.
c) Provide other academic institutions with useful models and approaches.
d) Raise public awareness of the importance and value to society of integrating research and education in science and engineering.

Award Administration

Grant awards resulting from this solicitation will be administered in accordance with the terms and conditions of NSF GC-1, ÒGrant General ConditionsÓ or FDP-II, ÒFederal Demonstration Project Terms and Conditions,Ó depending on the grantee organization. Copies of these documents are available at no cost from the NSF Forms and Publications Unit via telephone (703-306-1130) or e-mail (pubs@nsf.gov). More comprehensive information is contained in the NSF Grant Policy Manual (NSF 95-26), for sale through the Superintendent of Documents, Government Printing Office, Washington, DC 20402.

Reporting Requirements

The experiences, approaches, and achievements of the awardees represent a valuable knowledge source. NSF, the academic community, and the general public will benefit greatly from access to this knowledge. For this reason, NSF intends to facilitate interactions among the awardee institutions to ensure that this knowledge is made readily available. To minimize the burden on these institutions, the annual reporting requirements that attend the awards will be aligned as much as possible with the awardees' plans to gather information and document their activities.

Instructions to Applicants

All preliminary and full applications to this activity must be submitted via FastLane, NSF's system for electronic proposal submission and review, available through the World Wide Web. Detailed instructions for using FastLane to prepare and submit applications to this activity are presented in an Appendix on page 22 of this document.

In order to use NSF FastLane, applicants must use a browser that supports multiple buttons and radio buttons within tables (e.g., Netscape 1.1N and above for Windows and UNIX; Netscape 2.0 and above for Macintosh.) In addition, Adobe Acrobat Reader is needed to view and print forms. Instructions for downloading these software packages can be found in ÒHow to Use FastLaneÓ on the NSF FastLane Home Page (http://www.fastlane.nsf.gov). Users may send technical questions and comments to the FastLane staff using the ÒSend Comments to NSFÓ feature on this Home Page. In addition, technical questions concerning the use of FastLane can be directed to:

Dan Hofherr
Telephone: 703-306-1145, ext. 4686
E-mail: dhofherr@nsf.gov

Inquiries

Inquiries about NSF's Recognition Awards for the Integration of Research and Education activity should be addressed to:

Office of Science and Technology Infrastructure
Recognition Awards for the Integration of Research and Education
National Science Foundation, Room 1270
4201 Wilson Boulevard
Arlington, VA 22230
Telephone: 703-306-1040
Fax: 703-306-0129
E-mail: recaward@nsf.gov.
Website: http://www.nsf.gov/od/osti

References

The following reports provide background information on the importance and value of integrating research and education in science and engineering.

ÒNSF in a Changing World: The National Science Foundation's Strategic Plan,Ó 1995, NSF Publication 95-24.

ÒStresses on Research and Education at Colleges and Universities: Institutional and Sponsoring Agency Responses,Ó 1994, Joint Report of the National Science Board and Government-University-Industry Research Roundtable, National Research Council.

ÒReshaping the Graduate Education of Scientists and Engineers,Ó 1995, Committee on Science, Engineering, and Public Policy, National Academy Press.

ÒGraduate Education and Postdoctoral Training in the Mathematical and Physical Sciences,Ó 1996, NSF Publication 96-21.

ÒRenewing the Promise: Research-Intensive Universities and the Nation,Ó 1992, President's Council of Advisors on Science and Technology, U.S. Government Printing Office.

ÒScience and Technology Centers: Partners in Science, Engineering, and Mathematics Education,Ó 1994, Report of NSF's Science and Technology Centers.

ÒAssessment of the National Science Foundation's Engineering Research Centers Program,Ó 1989, National Academy of Engineering.

ÒAmerica's Academic Future: A Report of the Presidential Young

Investigators Colloquium on U.S. Engineering, Mathematics, and Science Education for the Year 2010 and Beyond,Ó 1992, NSF Publication 91-150.

Related NSF Programs

The National Science Foundation provides a variety of funding opportunities that support the integration of research and education. NSF invites you to explore the activities listed below. Instructions for obtaining NSF publications is provided on the inside cover of this solicitation. Room numbers are for NSF Headquarters, 4201 Wilson Blvd., Arlington, VA 22230.

· The Faculty Early Career Development (CAREER) Program supports junior faculty in their efforts to develop careers which balance and integrate research and education. Contact information for each NSF Directorate is available in NSF Publication 95-118.

· Research at Undergraduate Institutions (NSF 94-79) provides research and research equipment support to faculty at predominantly undergraduate institutions through all NSF research programs. RUI proposals highlight the educational impact of the research activities. Inquiries should be made to the appropriate research division and program.

· The Collaborative Research at Undergraduate Institutions Program (NSF 94-90) supports the development of quality, hands-on approaches to undergraduate science education and research by collaborative groups of faculty and students. The program, jointly sponsored by the Directorates for Biological Sciences (BIO) and Mathematical, and Physical Sciences (MPS) targets cross-disciplinary research and education. Division of Biological Instrumentation and Resources, Room 615 (703/306-1470)

· The Research Experiences for Undergraduates Program (NSF 93-112; revision to be released June 1996) supports undergraduate student involvement in hands-on research activities, either through supplements to existing research grants or through special awards for site-based group research experiences. These opportunities for undergraduate research experience are provided by all NSF disciplinary research divisions. Inquiries concerning REU Supplements should be directed to the program that made the awards; information on REU Sites may be obtained from the relevant research division.

· The Graduate and Minority Graduate Fellowship Program (NSF 95-121) promotes the future strength and diversity of the Nation's scientific and technological base through recognition and three-year support to outstanding graduate students in all fields of science, mathematics, and engineering. Division of Graduate Education, Room 907 (703/306-1694)

· The Graduate Research Traineeships Program (GRT; NSF 94-140) provides universities with graduate student support in order to increase the number of talented American undergraduates who pursue graduate training. GRT targets its support toward critical and emerging areas of science and engineering where an increase in the number of Ph.D.s is in the national interest. Division of Graduate Education, Room 907 (703/306-1696)

· The Research Careers for Minority Scholars Program (RCMS; NSF 94-122) provides support for implementation of comprehensive research experiences and academic enrichment programs for minority undergraduate science, mathematics, and engineering students. This program seeks to enable minority participants to pursue careers successfully in science and engineering. Division of Human Resource Development, Room 815 (703/306-1640)

· The BIO Research Training Groups Program (BIO RTGs; NSF 95-114) supports innovative, multidisciplinary education and training programs at Ph.D.-granting institutions. Typically, RTGs emphasize graduate education while including undergraduate and postdoctoral students in activities that integrate across traditional disciplinary boundaries and educational levels. Division of Biological Instrumentation and Resources, Room 615 (703/306-1469)

· Research Award Supplements from the Informal Science Education Program (NSF 96-34) is an experimental activity that provides support to investigators with active grants from the Biological Sciences (BIO) Directorate to disseminate the results of their research to the general public in out-of-school settings including community-based organizations and museums, and through diverse media. Division of Elementary, Secondary, and Informal Education, Room 885 (703/306-1616)

· The Grant Opportunities for Academic Liaison with Industry (GOALI) Program is an NSF-wide activity (see NSF 95-111 and -112 directorate-specific guidelines) that supports a variety of industry university linkages

that create opportunities for faculty, postdoctoral fellows, and students to conduct research and gain experience in an industrial setting. GOALI also supports development of innovative industry-university educational programs. Directorate for Engineering (703/306-1371 or -1330)

· The Combined Research-Curriculum Development Program (NSF 96-36) supports the incorporation of recent research advances in important areas of technology into upper level undergraduate and graduate engineering curricula. Division of Engineering Education and Centers, Room 585 (703/306-1380)

· The Engineering Education Coalitions Program (NSF 95-62 fact sheets) supports development of innovative and comprehensive models for the reform of undergraduate engineering education. Division of Engineering Education and Centers, Room 585 (703/306-1380)

NSF also supports several centers programs whose missions include the integration of research and education. These are:

· The Engineering Research Centers Program (NSF 96-23) Division of Engineering Education and Centers (703/306-1380)

· The Science and Technology Research Centers Program (NSF 92-104) Office of Science and Technology Infrastructure (703/306-1040)

· The Materials Research Science and Engineering Centers Program (NSF 95-89) Division of Materials Research (703/306-1815)

· The Minority Research Centers of Excellence Program (NSF 94-122) Division of Human Resource Development (703/306-1633)

List of Eligible Research Universities

The following institutions are eligible to submit preliminary applications in response to this solicitation. These institutions include: all Research I and Research II Universities (as defined by the Carnegie Foundation for the Advancement of Teaching); institutions that have been among the top 100 recipients of NSF support in 1992, 1993, or 1994 and have well-established Ph.D. programs in science and engineering; and the Ph.D.-granting university in each state with the highest level of NSF support for research and education in science and engineering.

ALABAMA
Auburn University
University of Alabama at Birmingham

ALASKA
University of Alaska Fairbanks

ARIZONA
Arizona State University
University of Arizona

ARKANSAS
University of Arkansas, Main Campus

CALIFORNIA
California Institute of Technology
Stanford University
University of California at Berkeley
University of California at Davis
University of California at Irvine
University of California at Los Angeles
University of California at Riverside
University of California at San Diego
University of California at San Francisco
University of California at Santa Barbara
University of California at Santa Cruz
University of Southern California

COLORADO
Colorado State University
University of Colorado at Boulder

CONNECTICUT
University of Connecticut
Yale University

DELAWARE
University of Delaware

DISTRICT OF COLUMBIA
George Washington University
Georgetown University
Howard University

FLORIDA
Florida State University
University of Florida
University of Miami
University of South Florida

GEORGIA
Emory University
Georgia Institute of Technology
University of Georgia

HAWAII
University of Hawaii at Manoa

IDAHO
University of Idaho

ILLINOIS
Northwestern University
Southern Illinois University at Carbondale
University of Chicago
University of Illinois at Chicago
University of Illinois at Urbana-
Champaign

INDIANA
Indiana University at Bloomington
Purdue University, Main Campus
University of Notre Dame

IOWA
Iowa State University
University of Iowa

KANSAS
Kansas State University
University of Kansas, Main Campus

KENTUCKY
University of Kentucky

LOUISIANA
Louisiana State University and A&M
College
Tulane University

MAINE
University of Maine at Orono

MARYLAND
Johns Hopkins University
University of Maryland College Park
University of Maryland Baltimore Co.

MASSACHUSETTS
Boston University
Brandeis University
Harvard University
Massachusetts Institute of Technology
Northeastern University
Tufts University
University of Massachusetts at
Amherst
Woods Hole Oceanographic Institution

MICHIGAN
Michigan State University
University of Michigan at Ann Arbor
Wayne State University

MINNESOTA
University of Minnesota at Twin Cities

MISSISSIPPI
Mississippi State University
University of Mississippi

MISSOURI
Saint Louis University
University of Missouri at Columbia
Washington University

MONTANA
Montana State University

NEBRASKA
University of Nebraska at Lincoln

NEVADA
University of Nevada-Reno

NEW HAMPSHIRE
Dartmouth College
University of New Hampshire

NEW JERSEY
Princeton University
Rutgers, The State University of New
Jersey at New Brunswick Campus

NEW MEXICO
New Mexico State University
University of New Mexico

NEW YORK
Columbia University
Cornell University
CUNY
New York University
Rensselaer Polytechnic Institute
Rockefeller University
State University of New York at Albany
State University of New York at Buffalo
State University of New York at Stony
Brook
Syracuse University, Main Campus
University of Rochester
Yeshiva University

NORTH CAROLINA
Duke University
North Carolina State University
University of North Carolina, Chapel Hill

NORTH DAKOTA
North Dakota State University

OHIO
Case Western Reserve University
Kent State University, Main Campus
Ohio State University, Main Campus,
Ohio University, Main Campus
University of Cincinnati, Main Campus

OKLAHOMA
Oklahoma State University, Main Campus
University of Oklahoma, Norman Campus

OREGON
Oregon State University
University of Oregon

PENNSYLVANIA
Carnegie Mellon University
Drexel University
Lehigh University
Pennsylvania State University, Main

Campus
Temple University
University of Pennsylvania
University of Pittsburgh, Pittsburgh
Campus

RHODE ISLAND
Brown University
University of Rhode Island

SOUTH CAROLINA
Clemson University
University of South Carolina at Columbia

SOUTH DAKOTA
South Dakota State University

TENNESSEE
University of Tennessee at Knoxville
Vanderbilt University

TEXAS
Rice University
Texas A&M University
Texas Tech University
University of Houston
University of Texas at Austin

UTAH
Brigham Young University
University of Utah
Utah State University

VERMONT
University of Vermont

VIRGINIA
University of Virginia
Virginia Commonwealth University
Virginia Polytechnic Institute and State
University

WASHINGTON
University of Washington
Washington State University

WEST VIRGINIA
West Virginia University

WISCONSIN
University of Wisconsin at Madison
University of Wisconsin at Milwaukee

WYOMING
University of Wyoming

Appendix: Application Procedures

In order to access NSF's FastLane, applicants must use a browser which supports multiple buttons (i.e., Netscape 1.1N and above for Windows or UNIX, or Netscape 2.0 and above for Macintosh). In addition, Adobe Acrobat Reader is needed to view and print forms. Instructions for downloading a browser and Adobe Acrobat Reader are available under 'How to Use FastLane' on the NSF FastLane Home Page (http://www.fastlane.nsf.gov). Users may send technical questions and comments to the FastLane staff using the 'Send Comments to NSF' feature found on each FastLane Web page. In addition, technical questions concerning the use of FastLane can be directed to:

Dan Hofherr
Telephone: 703-306-1145, ext. 4686
E-mail: dhofherr@nsf.gov

REGISTERING AS A FASTLANE INSTITUTION

If your institution is not registered as a FastLane institution, your Sponsored Research Office must register as a FastLane institution before a preliminary application for a Recognition Award can be prepared and submitted.

Registering as a FastLane institution will also allow an organization to:

· get up-to-the-minute status reports on all pending proposals from the institution,
· receive a variety of reports concerning the institution's interactions with NSF,
· submit final project reports electronically, and
interact with NSF's Cash Request system.

Registering as a FastLane institution is simple and straightforward. Instructions and the registration form are provided on the NSF FastLane Homepage under 'Information about FastLane.' Your Sponsored Research Office will be assigned a Master Institutional PIN (Personal Identification Number) that will be required for all subsequent interactions with FastLane. Your Sponsored Research Office must designate a primary institutional user who will have the ability to add FastLane users, assign PINs to these users, and change user permissions. This registration process takes approximately one to two weeks and should be initiated as soon as possible to allow sufficient time for preparing and submitting an application.

PROVIDING INFORMATION ON FIRST-TIME PRINCIPAL INVESTIGATORS AND CO-PRINCIPAL INVESTIGATORS

If either the Principal Investigator (PI) or Co-Principal Investigator (Co-PI) has never been the PI or Co-PI on a previously submitted proposal to NSF, then he or she must be entered in NSF's PI database prior to preparing a preliminary application. The PI on these applications must be the president, provost, or equivalent officer of the university. One additional individual, the Project Director, may be designated as a Co-PI.

To provide information on first-time PIs or Co-PIs, send an e-mail message to fladmin@nsf.gov with the following information about each individual:

Name
Highest Degree and Year Conferred
Institution
Department
Street Address
City, State, Zip
Social Security Number
E-mail Address
Business Phone
Fax Number

An e-mail message confirming that the data have been entered will be sent to the individual who initiated the request.

ADDING FASTLANE USERS

The Sponsored Research Office must be sure that the PI and Co-PI have been added to the institution's pool of authorized FastLane users before they can begin preparing a preliminary application. Instructions on adding FastLane users are provided during the process of registering as a FastLane institution. The Sponsored Research Office is responsible for creating a PIN for each individual FastLane user. This PIN will be required each time that individual wishes to make FastLane transactions. The Sponsored Research Office also needs to give the PI the user permission to submit an application for a Recognition Award.

PREPARING A PRELIMINARY APPLICATION

To create a blank Recognition Award proposal and begin the proposal preparation, the PI must access the NSF FastLane Homepage (http://www.fastlane.nsf.gov). After selecting 'Proposal Forms Preparation,' the PI can access the FastLane Proposal Preparation function using the PIN provided by his or her Sponsored Research Office. Provide the log-on information and select the 'Proposal Preparation' button. At this point the PI should check the accuracy of his or her PI information. An individual may modify only his or her own PI information. If any of the information is incorrect, select the 'Edit Information' button and make the necessary changes. All fields must be filled out completely in order to continue preparing a proposal. At some point in the proposal preparation process, the Co-PI should follow this same procedure to check his or her PI information and make any necessary corrections.

After the PI information has been verified the PI should scroll down to the 'Proposal Actions' section and select the 'RECOGNITION AWARD' option and click on the 'OK' button. At this point the user can view these instructions, or can proceed directly to the 'RECOGNITION AWARD Proposal Actions' screen by pressing the 'OK' button. If the PI has not created

a Recognition Award proposal previously, one will be created at this point. FastLane will assign a 'kit number' and title ("Not Assigned") to this blank proposal. The kit number is not an official proposal number. It identifies the incomplete 'in progress' preliminary application and will be used only during the preparation process. The preliminary application will receive an official NSF proposal number when it is formally submitted, after the preparation process has been completed.

There is an index at the top of the 'RECOGNITION AWARD Proposal Actions' screen (and subsequent screens) that allows the user to move quickly within a page without scrolling. The user will have the opportunity to either modify an 'in progress' proposal or create another new blank proposal. Creating another new proposal will generate a new kit number. To modify an 'in progress' proposal, select the kit number and click on 'Edit.' This selection will give the user access to the 'Form Selector' screen.

The forms of an 'in progress' proposal may be accessed and modified by the PI or Co-PI of the proposal or by any other authorized FastLane user to whom the PI has given authority to access the proposal. The PI or Co-PI can provide access authority to another individual by creating an access PIN for an 'in progress' proposal. Creating a proposal PIN is an option available to the PI or Co-PI on the 'RECOGNITION AWARD Proposal Actions' screen. An authorized FastLane user other than the PI or Co-PI can then access an 'in progress' proposal by entering the kit number and PIN associated with that proposal. Unlike when the PI or Co-PI accesses his or her 'in progress' proposal, another authorized user would bypass the 'RECOGNITION AWARD Proposal Actions' screen and would proceed directly to the 'Form Selector' screen.

The 'Form Selector' screen allows the user to work on any of the forms required for submitting an application to this activity. Although there are four required forms, the user will only need to complete the following three forms: the Cover Sheet (NSF Form 1207), Biographical Sketches for the PI and Co-PI (NSF Form 1362), and the Project Summary (NSF Form 1358.) The fourth form, 'Information About Principal Investigators and Project Directors'(NSF Form 1225), is filled automatically with the PI information displayed after clicking on the 'Proposal Preparation' button. This PI and Co-PI information can be edited by clicking on the 'Edit Information' button immediately after logging into the FastLane system. None of the other forms described in NSF's Grant Proposal Guide (GPG; NSF Publications 95-27 and 95-28) are required for this application process.

Select the form to be filled out and click on 'Go to Form.' The template for the form selected will be provided at this point. The user can save a partially completed form and edit it at a later time. The steps used to access and edit a partially completed form are the same steps used to begin filling out a blank form.

Cover Sheet (NSF Form 1207). After specifying the intent to complete a Recognition Awards application, many of the data fields on the cover sheet will be filled in automatically for the user. The following information fields must be completed by the user:

1. Awardee and Performing Institution. The institution and institution code from the PI's record in the NSF PI database will be used to fill in the awardee and performing institution fields on the cover sheet. Verify the awardee and performing institutions. Changes may be made by selecting the 'Awardee Institution Search' or 'Performing Institution Search' button. Title of Proposed Project. The application's title must begin with "Integrating Research & Education:" This part of the title will appear automatically and the user should complete the title.

2. Co-PI. A single Co-PI may be selected by typing in that individual's Social Security Number. If this individual has not previously been a PI or Co-PI on an NSF proposal, then he or she must be entered in the NSF PI database prior to being assigned to the preliminary application (see instructions for first-time NSF PIs and Co-PIs, above.) If the Sponsored Research Office has made the Co-PI a FastLane user, he or she will be able to access and modify the preliminary application by entering their log-on information and clicking the 'Proposal Preparation' button.

3. Certification section. The preliminary application cannot be submitted until all of the items in the Certification section of the Cover Sheet have been completed.

When the Cover Sheet is complete, choose 'OK' to save the data entries and return to the 'Form Selector' screen.

Biographical Sketch (NSF Form 1362). There are two ways to prepare a Biographical Sketch: 1) The user can cut and paste text from a word processed document. However, doing so will only transfer text. Special formatting

such as bold-facing, italicizing, and underlining will be lost in the cut-and-paste process. 2) The user can type text directly into the form using the interface provided. Each Biographical Sketch must be limited to one page in length, which corresponds to a maximum of 3,265 characters. When each Biographical Sketch is complete, choose 'OK' to save the data entries. The user will be given the option of editing another Biographical Sketch associated with the application or selecting 'Cancel' to return to the 'Form Selector' screen.

Project Summary (NSF Form 1358). The Project Summary should include three narrative sections, (see Application Format and Review Criteria for Preliminary Applications in the Recognition Award solicitation.) There are three ways to prepare a Project Summary: 1) The user can cut and paste text from a word processed document. However, doing so will only transfer text. Special formatting such as bold-facing, italicizing, and underlining will be lost in the cut-and-paste process. 2) The user can submit a Portable Data Format (PDF) file which the user creates by saving a file to disk using PDF Writer as the printer driver. Doing so will preserve the exact formatting created by the user. If you want to use the PDF file upload capability or the automatic word wrap for text blocks you must use a browser which supports these capabilities (Netscape 2.0 or later). PDF Writer; is a commercial product provided with Adobe Exchange and Adobe Distiller (see Adobe Website http://www.adobe.com for information). 3) The user can type text directly into the form using the interface provided. The user may use any of the three methods described above in preparing the Project Summary. The length of the Project Summary must be limited to 3 pages, which corresponds to a maximum of 9,795 characters. If this length limit is exceeded, some data may not be successfully saved.

SUBMITTING THE PRELIMINARY APPLICATION

After all forms have been completed, return to the 'RECOGNITION AWARD Proposal Actions' screen and select 'Check' to verify that all required fields and forms have been completed. If the user selects 'Submit Proposal' and information is missing on one or more required forms, then a message to that effect will be displayed immediately. If all required information has been provided, the preliminary application will be submitted at this point. After selecting 'OK', the user will receive an official NSF proposal number. Please record this proposal number for future reference. FastLane will also send messages to the PI's and Co-PI's e-mail addresses verifying NSF's receipt of the application. If these confirmation messages are not received within two business days of submitting the preliminary application, please send an inquiry to recaward@nsf.gov.

NSF requires submission of a signed Cover Sheet and Certification Page of Form 1207. Form 1207 should be printed out only after the application has been submitted electronically and has been assigned an official NSF proposal number. To print this form, select 'View Submitted' in the 'Proposal Action' section of the screen presented after the user selects 'Proposal Preparation' after logging into FastLane. The user will be presented with a list of all proposals submitted by that individual. Select the appropriate item and 'View.' A 'Proposal Printing' menu will allow the user to select forms for printing. Clicking on 'OK' will transfer the user to Adobe Acrobat Reader, display the selected form(s), and allow the user to select 'Print' under the 'File' menu. Quitting Adobe Acrobat Reader will return the user to the 'Proposal Printing Menu.' The printed Cover Page (Form 1207) will include blank check-boxes that were not presented when the user was filling out the electronic form. Information from these check-boxes is not required for this activity.

The printed copies of both pages must be signed by the PI and Co-PI and mailed to:

Announcement No. NSF 96-87
National Science Foundation PPU
4201 Wilson Boulevard, Room P60
Arlington, VA 22230
ATTN: Recognition Awards for the Integration of Research and Education

PREPARING AND SUBMITTING A FULL APPLICATION

Instructions for preparing and submitting a full application will be provided to all PIs and Co-PIs who have submitted preliminary applications. These instructions will be sent via e-mail no later than September 15, 1996.

interpretation.

The Foundation welcomes proposals on behalf of all qualified scientists and engineers, and strongly encourages women, minorities, and persons with disabilities to compete fully in any of the research and research-related programs described in this document.

In accordance with Federal statutes and regulations and NSF policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from the National Science Foundation.

Facilitation Awards for Scientists and Engineers with Disabilities provides funding for special assistance or equipment to enable persons with disabilities (investigators and other staff, including student research assistants) to work on NSF projects. Contact the program coordinator in the Directorate for Education and Human Resources. The telephone number is (703) 306-1636.

The National Science Foundation has TDD (Telephonic Device for the Deaf) capability, which enables individuals with hearing impairment to communicate with the NSF Information Center about NSF programs, employment, or general information. To access NSF TDD dial (703) 306-0090; for FIRS, 1-800-877-8339.

The information requested on proposal forms is solicited under the authority of the National Science Foundation Act of 1950, as amended. It will be used in connection with the selection of qualified proposals and may be disclosed to qualified reviewers and staff assistants as part of the review process; to applicant institutions/grantees; to provide or obtain data regarding the application review process, award decisions, or the administration of awards; to government contractors, experts, volunteers, and researchers as necessary to complete assigned work; and to other government agencies in order to coordinate programs. See Systems of Records, NSF 50, Principal Investigators/Proposal File and Associated Records, and NSF-51, 60 Federal Register 4449 (January 23, 1995). Reviewer/Proposal File and Associated Records, 59 Federal Register 8031 (February 17, 1994). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of your receiving an award.

Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Herman G. Fleming, Reports Clearance Officer, Contracts, Policy, and Oversight, National Science Foundation, 4201 Wilson Boulevard, Arlington, VA 22230.

This activity is described in the Catalog of Federal Domestic Assistance category:

47.073 Office of Science and Technology Infrastructure

See list of references, p. 14 of this announcement